

Rigid, Semi-rigid and Flexible Slabs

Versatile thermal and acoustic insulation slabs

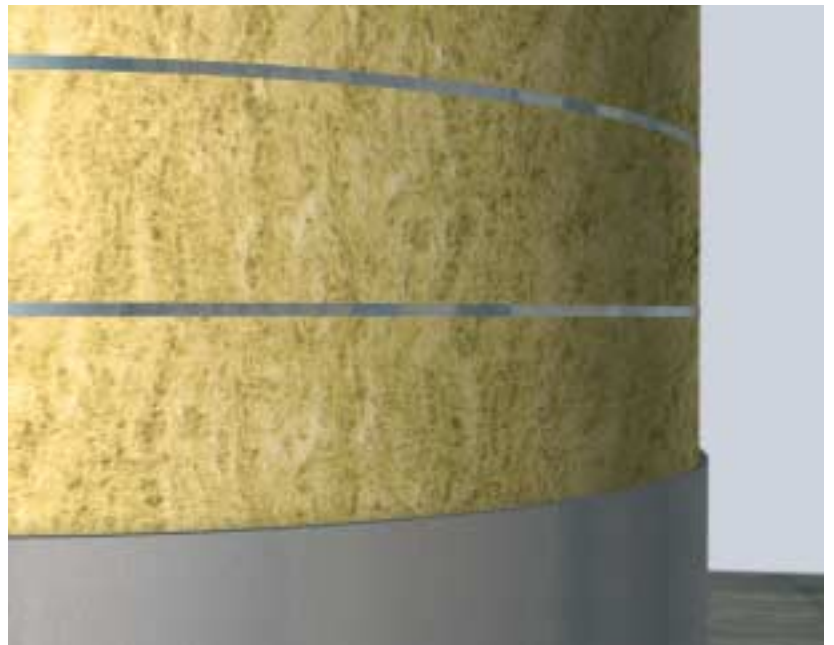
Rockwool Rigid, Semi-rigid and Flexible Slabs are high quality resin bonded Rockwool Slabs that can be used for thermal, acoustic and fire insulation. They are manufactured in a variety of thicknesses and densities to suit most requirements. They are suitable for many applications including:

Thermal insulation for floors, walls, roofs and boiler rooms.

Ventilation plant in all types of buildings, offshore platforms and ships, acoustic ceilings and partition panels.

Advantages

- Excellent thermal, acoustic and fire insulation
- Water repellent
- Resists high temperatures
- Easy to handle and install
- Cost effective
- No maintenance
- Black and white tissue faced options



Large storage vessel insulated with Rockwool Rigid Slabs and overlaid with metal



Thermal and acoustic insulation using Rockwool Slabs in walls, floors and partitions

RW2 to be replaced by exciting, new product range to be launched July 2002

Description, performance and properties

Standards

Rockwool Slabs conform to BS EN 13162: 2001. Thermal insulation products for buildings – factory made mineral wool (MW) products – specification, and satisfy the requirements of BS 5422 ‘Method for specifying thermal insulating materials for pipes, tanks, vessels ductwork and equipment....’

Description

Dimensions

Standard size: 1200 × 600 mm

Thicknesses: 30, 40, 50, 60, 75 and 100 mm*

Types and densities

kg/m ³		kg/m ³	
RW2	33	RW5	100
RWA45	45	RW128	128
RW3	60	RW6	140
RW4	80	RW7*	200

Other sizes and thicknesses are available to special order

NB *RW7 is not available in 100 mm thickness

Finishes

Non-woven mineral black or white tissue, aluminium foil and various other finishes are available.

Environment

No CFCs, HFCs or HCFCs are used in the manufacture of Rockwool materials.

Performance and properties

Resistance to compression

	Stress req'd to produce 10% compression (kN/m ²)	Stress req'd to reach elastic limit σ_e (kN/m ²)	Displacement at 5 kN/m ² stress (%)
RW2	2.0	2.3	38.6
RWA45	3.0	3.5	20.8
RW3	6.7	6.1	7.8
RW4	12.9	9.2	3.4
RW5	16.4	11.3	2.7
RW128	22.0	18.0	2.2
RW6	28.2	26.1	1.7
RW7	68.2	49.9	0.7

Tested in accordance with BS EN 826: 1996

NB Elastic limit occurs between 6 and 12% deformation.

Fire

Rockwool RW slabs are certified by Lloyd's Register of Shipping as non-combustible materials for use on:

- fixed offshore installations
- MED classed ships – DTLR MCA approval

Rockwool RW slabs are rated non-combustible in accordance with ISO 1182 and IMO A. 799.

Water resistance

Rockwool RW slabs are highly water repellent. Where it is necessary to maintain water repellency subsequent to heating at elevated temperatures, the use of WRG grade slabs is recommended.

Maximum service temperatures

The maximum recommended service temperature of unfaced Slabs depends on the composition of the product and is given in the chart below.

For faced products, the facing temperature should not exceed 80°C – the melting temperature of the adhesive.

Rockwool Slabs are bonded with a phenolic resin which is resistant to temperatures up to 230°C. They may be used at much higher temperatures, but some resin will be lost close to the hot surface.

Product	Service Temperatures C ^o									
	100	200	300	400	500	600	700	800	900	1000
RW2		175								
RWA45		230								
RW3					425					
RW4					475					
RW5					525					
RW128						600				
RW6							675			
RW7							675			
Process Pipe Sections							700			
Rocklap 800							700			
Pipe Section Mat (140 kg/m ³)							675			
Bevelled Lags							675			
Industrial Wired Mat						600				
HD Wired Mat								800		
Ductwrap and Ductslab		230								
Firebatt 825								800		
Lamella Mat		230								
Conlit Hydrocarbon Slab								800		
Conlit Firewall Slab								800		
Techwrap		230								

Bending radius

Curved surfaces can be insulated with Rockwool Slabs. The table below gives the minimum bending radius for several Rockwool Slabs. Bending to smaller radii can deform the product and increase the installation time.

Minimum bending radius for Rockwool slabs

(These typical figures depend on the installation method)

Product	Slab thickness (mm)							
	30	40	50	60	75	80	100	120
RW2	350	400	500	700	900	1000	1500	2000
RWA45	425	500	700	900	1200	1300	1800	2400
RW3	425	500	700	1000	1350	1500	1900	2800
RW5	550	700	1000	1500	2250	2500	2500	
RW6	1500	1900	2600	3000	3300	3400	3500	

Product	Slab thickness (mm)							
	25	30	40	50	65	75		
Firebatt 825		500	-	700	1000	-	2000	
Hydrocarbon Slab			-	600	700	1000	1500	-

All radii given in millimetres.

Performance and properties

Acoustics

Rockwool stone wool works in two distinct ways to reduce noise, either by impeding the transmission of sound through an element of the structure or by absorption of sound at the surface.

Noise absorption is expressed as a factor between 0 and 1.0. The more sound that a surface absorbs, the higher its absorption co-efficient.

The structure of the fibres in Rockwool Slabs make them ideal for use as a sound absorber, with characteristically high coefficients over a wide frequency range (see Table below).

For a comprehensive discussion of acoustics and Rockwool insulation materials, please see the Rockwool Acoustic Manual.

Tissue faced slabs

Rockwool manufacture a wide range of tissue faced, line produced slabs, ranging from 33 kg/m³ to 200 kg/m³.

The tissues are bonded to the face of the slabs with binder which provides a superior acoustic and fire performance to fabricated, adhesive applied, tissue faced products.

70 gramme black and 100 gramme white tissue options are available from Rockwool.

Thermal conductivity (industrial applications)

Mean Temperature °C	λ Values (W/mK)							
	RW2	RWA45	RW3	RW4	RW5	RW128	RW6	RW7
50	0.043	0.040	0.039	0.038	0.037	0.037	0.037	0.038
100	0.055	0.050	0.047	0.045	0.044	0.044	0.044	0.043
150	0.070	0.063	0.058	0.055	0.054	0.052	0.051	0.050
200			0.070	0.066	0.064	0.061	0.060	0.059
250				0.079	0.075	0.071	0.070	0.068
300					0.088	0.082	0.081	0.079
350					0.104	0.096	0.093	0.089
400					0.122	0.109	0.106	0.100

Tested in accordance with BS 874: 1973. Cold face temperature 40°C.

Absorption coefficients for selected Rockwool slabs

Material	Thickness (mm)	Mounting	Frequency (Hz)					
			125	250	500	1K	2K	4K
Slab RW2	50	Direct	0.15	0.60	0.90	0.90	0.90	0.85
Slab RW2	100	Direct	0.35	0.95	1.00	0.92	0.90	0.85
Slab RW3	50	Direct	0.11	0.60	0.96	0.94	0.92	0.82
Slab RW3	75	Direct	0.34	0.95	1.00	0.82	0.87	0.86
Slab RW5	30	Direct	0.10	0.40	0.80	0.90	0.90	0.90
Slab RW5	30	300 mm gap	0.40	0.75	0.90	0.80	0.90	0.85
Slab RW5	75	Direct	0.40	0.75	0.90	0.80	0.90	0.85
Slab RW6	50	Direct	0.20	0.75	0.90	0.85	0.90	0.85
Slab RW6	50	300 mm gap	0.65	0.55	0.75	0.85	0.75	0.85

The absorption coefficients shown above are typical figures that can be achieved by unfaced Rockwool products. They have been obtained from a comprehensive range of measurements made over a number of years. Note Differences in coefficients of less than 0.15 are not significant.

Applications and typical details

Rockwool Slabs are suitable for a wide range of thermal, acoustic and fire insulation requirements both within buildings and for industry, as detailed on this and the following pages.

1 Industrial uses

Thermal and acoustic for boilers, ducts and vessels, particularly in the chemical, petrochemical and power generating industries.

Generally, for furnaces, ovens, calorifiers, hot-water boilers, storage tanks, drying equipment and air conditioning plant.

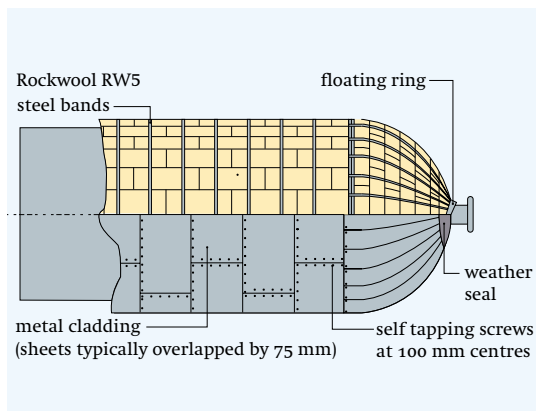


Figure 1 RW5 Slab insulation on a large vessel

2 Fire protection

Floors

RW2 Slabs laid between joists in a loadbearing timber floor will provide 1 hour fire protection. For test report see TRADA FR 907, (see Figure 2).

RW2 Slabs can also be used to firestop small voids, in particular the gap under pitched tiled roofs in dwellings see (Timber Frame data sheet).

Partitions

For fire rated metal stud partitions, please refer to the Acoustic Slab Products Data Sheet.

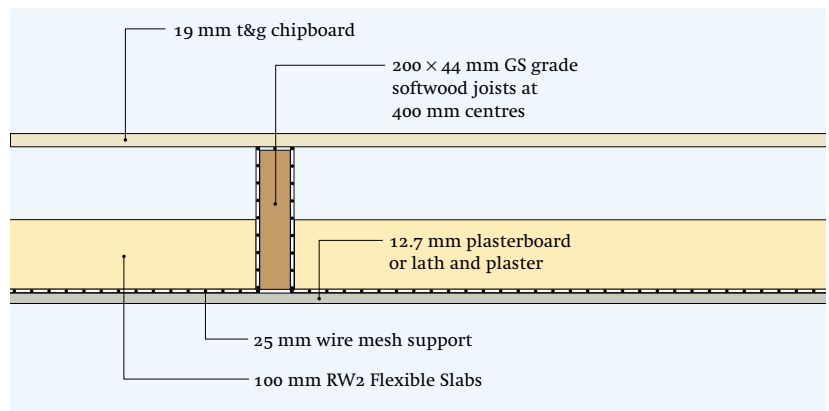


Figure 2 One hour fire resisting floor test report TRADA FR 907 (see Specification clause 2, page 4)

Applications and typical details (continued)

3 Acoustic control

The Slabs are particularly suitable for acoustic infills in partitions and ceilings, providing a high level of control of both airborne and structure-borne sound (see figure 4).

They are also suitable for acoustic absorption in the linings of buildings, RW3 being particularly good in sound studios.

RW2 Slabs are suitable for upgrading the sound insulation of a timber floor and the fire resisting floor detailed in Figure 2 (subject of TRADA Test report FR 907) will give a significant improvement in airborne sound insulation.

Rigid Slabs can be used in industrial applications such as acoustic splitters and acoustic damping of ducts.

Typical specification clauses – domestic and commercial applications

1 Dry lining using RW2 slabs

The thermal insulation is to be Rockwool RW2 Flexible Slabs mm* thick, applied between timber battens to a thickness to correspond with the depth of the batten. If a plasterboard with a vapour check is used, a separate VCL may not be required. It is important that the vertical joint in the plasterboard lining should coincide with the centre lines of the battens.

2 One hour fire resisting floor using RW2 slab

Remove floor boards and install a continuous run of 25 mm chicken wire mesh across the whole floor. Form the mesh so that it follows the profile of the joists and the top face of the ceiling lining. Cut 100 mm Rockwool RW2 Flexible Slabs to fit tightly between the joists and install tight to the ceiling. Lay new floor of either 19 mm flooring grade t&g chipboard or 19 mm square edged softwood boards plus a layer of 3 mm hardboard above or below the boards.

(The above construction corresponds with TRADA Fire test Report FR907).

3 RW3 slabs as acoustic infill to stud partition

The acoustic infill is to be Rockwool RW3 Semi-rigid Slabs mm* thick (insert thickness to correspond with depth of studs), installed to a tight fit between the timber studs and cut to close fit above and below noggings as necessary. Chasing of the acoustic infill or services will not be permitted without the prior consent of the Supervising Officer.

* Insert required thickness

Work on site

Handling and storage

Rockwool Rigid, Semi-rigid and Flexible Slabs are light and easy to cut to any shape with a sharp knife. They are shrink wrapped in polyethylene for short term protection. For long term protection they should be stored indoors or under a waterproof covering.

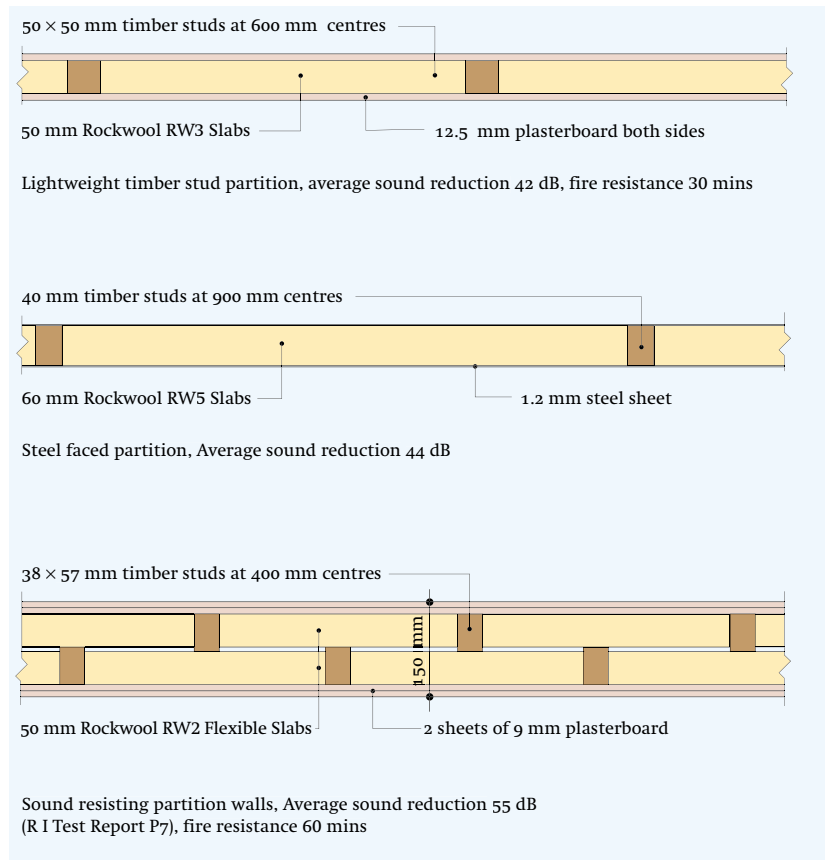


Figure 4 Sound resisting partitions

Maintenance

Once installed the Rockwool Slabs need no maintenance.

Health and safety

A COSHH Data sheet is available from Rockwool's Marketing Services Department.

Current HSE 'CHIP' Regulations and EU Directive 97/69/EC confirm that Rockwool fibres are not classified as a possible carcinogen.

Technical Helpline

Technical advice relating to Rigid, Semi Rigid Flexible Slabs is available from the Rockwool Technical Helpline Services Department on 0871 222 1780.

Rockwool Limited reserves the right to alter or amend the specification of products without notice as our policy is one of constant improvement.

The information contained in this data sheet is believed to be correct at the date of publication. Whilst Rockwool will endeavour to keep its publications up to date, readers will appreciate that between publications there may be pertinent changes in the law, or other developments affecting the accuracy of the information contained in this data sheet.

The above applications do not necessarily represent an exhaustive list of applications for Rigid, Semi-rigid and Flexible Slabs. Rockwool Limited does not accept responsibility for the consequences of using Rigid, Semi-rigid and Flexible Slabs in applications different from those described above. Expert advice should be sought where such different applications are contemplated, or where the extent of any listed application is in doubt.

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